

Service Manual Introduction

**BLUE BIRD**
®

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Safety Summary

The purpose of this safety summary is to ensure the safety and health of service personnel and the protection of equipment.

All users of this publication shall read, understand, and apply this safety summary when performing maintenance and operating procedures. Before using this manual to perform any service procedures, the applicable warnings and cautions must be read. Warnings and cautions are located throughout this manual—accompanying the appropriate service procedures.

WARNINGS, Cautions and Notes

All users of this publication shall read, and understand, all WARNINGS and Cautions.



WARNINGS REFER TO A PROCEDURE OR PRACTICE, THAT IF NOT CORRECTLY OBSERVED, COULD RESULT IN INJURY OR DEATH.



Cautions refer to a procedure or practice, that if not correctly observed, could result in damage to or destruction of equipment.

NOTE:

Notes refer to a practice to help do the work, or indicate a special area of information.

About this Manual

The purpose of this manual is to help you get the best value from your All American Bus. This manual can help you decide what work must be done and provides for routine maintenance as well as common service procedures.

This manual has diagnostic and repair procedures to use when trouble occurs. We have tried to make this service manual as comprehensive as possible. However, in some cases only the high volume options have been included. Additional information will be continually developed and made available in future revisions. Please contact the Blue Bird Customer Service department in the event that you need service information that is not found in this manual.

The manual is divided into sections. Each section corresponds to a functional category of parts or assemblies. These section numbers correspond to the Blue Bird Parts Catalog group numbers that may already be familiar to you. For example, group **030** in the Parts Catalogs and section **030** in this Service Manual both apply to brakes. A list of the sections is located on page **005-1** of this manual.

General Dimensions

Exterior width	96 inches
Exterior height	118 to 121 inches
Exterior height w/ AC	add 16 inches
Interior width	90 ¾ inches
Headroom	74 to 77 inches

Fluid Capacities

Engine Crankcase Oil	w/ filter	w/o filter
Cummins ISB	18 quarts	16 quarts
Cummins ISC	24 quarts	20 quarts
Cat 3126	30 quarts	27 quarts

Engine Coolant

Cummins ISB w/ auto-transmission.....	24.6 quarts
Cummins ISB w/ manual-transmission....	23.6 quarts
Cummins ISC	38 quarts
Cat 3126	41 quarts

NOTE:

Engine coolant capacity is dependent upon a number of factors, such as hose lengths and heater options.

See [Section 040—Cooling System](#) for aid in determining total system capacity.

Transmission Fluid

Cummins ISB w/ auto-transmission.....	20 quarts
Cummins ISB w/ manual-transmission.....	6.5 quarts
Cummins ISC	19 quarts
Cat 3126	20 quarts

Rear Axle Fluid Capacities

Spicer J-190-S, Single Speed.....	31.5 pints
Spicer J-210-S, Single Speed.....	31.5 pints
Spicer J-230-SB, Single Speed.....	31.5 pints
Spicer M-190-T, Two Speed	35 pints

Jacking Instructions

WARNING

PROPER JACKING PROCEDURES MUST BE FOLLOWED TO ENSURE THE SAFETY OF THE OPERATOR. ALWAYS CHECK THAT THE APPROPRIATE JACKS OR JACK STANDS ARE SECURELY IN PLACE AND THAT THE PARKING BRAKE HAS BEEN SET BEFORE POSITIONING YOURSELF UNDER A BUS.

1. Park the vehicle on flat, level concrete or comparable surface capable of supporting the jacking device.

2. Apply the parking brake.

3. Place chocks at the front and rear of tires opposite wheel/ or wheels to be lifted.

4. Use jacks and jack stands or blocks of sufficient capacity to support the vehicle. Following the jack manufacturer's recommended procedure, place jack securely under the axle at spring or suspension beam.

5. Jack the vehicle to required height for servicing.

WARNING

FAILURE TO ENSURE THAT ANY LOCKING DEVICE ON THE JACK IS IN PLACE AND OPERATING AND THAT THE VEHICLE IS SOLIDLY SUPPORTED COULD RESULT IN SERIOUS INJURY OR EVEN DEATH.

6. Support the vehicle under the main frame rails with jack stands or blocks before working under or around the bus.

7. After servicing is complete, reverse the above procedure.

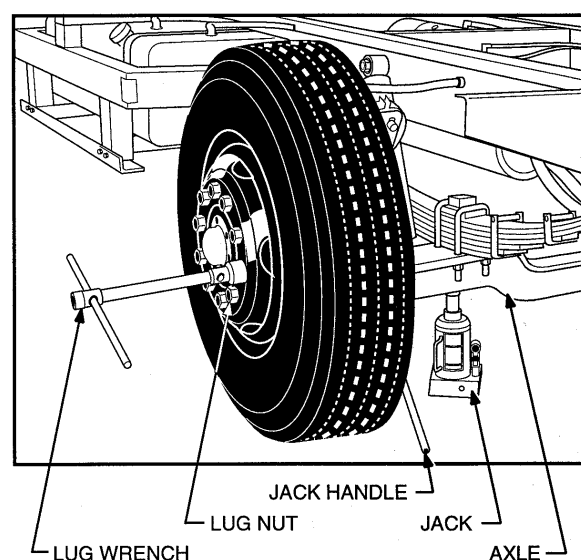


Figure 1—Jacking Procedure

A3 Introduction

Suspension Maintenance Chart

Operation	Service Intervals								Months / Miles Whichever Occurs First
	1/3,000	3/5,000	3/24,000	6/6,000	6/10,000	12/12,000	12/24,000	24/24,000	
									*Service Intervals to be performed on a continuing basis. Example: 1 / 3,000 means every month or every 3,000 miles
									General Instructions
SPRING SUSPENSION									
Check Front U-bolt Torque						●			Torque to 300-310 ft. / lbs.
Check Rear U-bolt Torque						●			Torque to 325 ft. / lbs.
Check Spring Pin Lock Bolt						●			Bolt, hardened flatwasher and locknut must be in position.
Lubricate Spring Pin (Front Suspension)					●				6 Fittings. Lubricate at first 1,000 miles and then at regular intervals. Use NLGI grade No. 2 Grease. See key No.1 page 005-12.
Inspect Suspension						●			Inspect all spring components for damage or misalignment.
Inspect Shocks						●			Inspect for leaks.
Check Hanger Bracket Fastener Torque						●			Torque to 80 +/- 5 ft. lbs. (Non Huck Fasteners Only)
HENDRICKSON REAR AIR									
Check U-bolt Torque						●			Torque to 400-450 ft. lbs.
Check Torque Arm Bolts						●			Torque to 150-205 ft. lbs.
Check Shock Mtg. Bolts						●			Torque to 50-70 ft. lbs. (Upper) 260-320 ft. lbs. (Lower)
Check Air Spring Fasteners						●			½" Torque to 30-35 ft. lbs. ¾" Torque to 30-35 ft. lbs.
Inspect Shocks						●			Inspect for leaks.
Check Ride Height						●			Shock length (eye-eye) 24.75" +/- .25 (FE) 21.75" +/- .25 (RE)
HENDRICKSON FRONT AIR									
Check Front Axle to Suspension Fasteners						●			Torque to 260-280 ft. lbs.
Check Front Pivot Bolts						●			Torque to 450-480 ft. lbs.
Check Transverse Leaf Bolts						●			Torque to 290-310 ft. lbs.
Check Shock Mtg. Bolts						●			Torque to 200-240 ft. lbs.
Check Air Spring Fasteners						●			½" Torque to 30-35 ft. lbs. ¾" Torque to 30-35 ft. lbs.
Check Shocks						●			Inspect for leaks.
Check Height of Suspension						●			Shock length (eye-eye) 18.50" +/- .25.

NOTE: Refer to the [1999 All American Operator's Manual](#) for most maintenance procedures.

Axle Maintenance Chart

Operation	Service Intervals								Months / Miles Whichever Occurs First
	1/3,000	3/5,000	3/24,000	6/6,000	6/10,000	12/12,000	12/24,000	24/24,000	
									*Service Intervals to be performed on a continuing basis. Example: 1 / 3,000 means every month or every 3,000 miles
									General Instructions
REAR AXLE									
Check Lubricant				●					See Section 020—Rear Axle . Keep oil to level of filler plug. Drain & refill at first 1,000 to 3,000 miles and then at recommended intervals. Check level testing plug on rear of axle bowl. See key No.2 page 005-12 .
Change Lubricant							●		
Inspect Vent				●					See key No.3 page 005-12 .
FRONT AXLE									
Lubricate King Pin		●							4 Fittings. Use NLGI Grade No. 2 Grease. See key No.4 page 005-12 .
Lubricate Tie Rod		●							2 Fittings. Use NLGI Grade No. 2 Grease. See key No.5 page 005-12 .
Inspect Alignment and Component Wear	If Tire Wear Indicates								Caster 3° +/- 1° positive. Camber 0° +/- 7/16° RH & LH. (Toe-In 0 to 1/16") Spring and Neway Air suspensions. Axle settings are the same for both radial and bias ply tires.
FRONT AXLE STEERING									
Check Hydraulic Reservoir Fluid Level				●					Check level sight glass. Use Dexron II.
Change Reservoir Filter							●		More frequent filter changes may be necessary in a dusty environment. BB filter #2108199.
Lubricate Drag Rod				●					2 Fittings. Use NLGI Grade No. 2 Grease. See key No.6 page 005-12 .
Inspect Power Steering Pump						●			Check for leakage around the shaft or housing. If leak is evident (fluid oozing out), it should be corrected immediately.
Inspect Steering Gear						●			Check for leakage around the shaft or housing. If leak is evident (fluid oozing out), it should be corrected immediately. See key No.7 page 005-12 .
Index Pitman Arm	If Arm is Removed								See Section 120—Steering .
Lubricate Steering Column						●			Lubricate the slide. Access to slide is obtained by removing rubber boot. Use NLGI Grade No. 2 Grease.
Lubricate Steering Gear				●					See Section 120—Steering . Grease fitting located on rear of gear. Use hand grease gun only. Use NLGI Grade No. 2 Grease. See key No.7 page 005-12 .
TIRES									
Check Tires	Weekly								

NOTE: Refer to the [1999 All American Operator's Manual](#) for most maintenance procedures.

Brake Maintenance Chart

Operation	Service Intervals								Months / Miles Whichever Occurs First
	1/3,000	3/5,000	3/24,000	6/6,000	6/10,000	12/12,000	12/24,000	24/24,000	*Service Intervals to be performed on a continuing basis. Example: 1 / 3,000 means every month or every 3,000 miles
AIR BRAKE SYSTEM									General Instructions
Air Brake Operation									See Section 030—Brakes .
Clean & Replace Air Comp. Filters				●					Bendix filter #243009. BB #1339993.
Clean Governor				●					Disassemble all valves and lubricate at 100,000 miles.
Inspect Bendix Air Dryer			●						See Bendix Service Data sheet SD-08-04.
Inspect & Clean Cyclo-gard Air Dryer								●	See Cyclo-gard Air Dryer Form #313.
Clean Anchorlok Air Dryer Tank and Flush Drain Valve				●					See Anchorlok Air Dryer Service Instructions. Service in spring and fall.
Inspect Heated Reservoir Drain Valve									See Stark Expello Valve Form S-103. Maintenance-free no adjustment or cleaning necessary.
Drain Air Tanks									Drain Condensation.
									Daily-cold weather Weekly-warm weather
Check Pop-Off Valves							●		Disassemble all valves and lubricate at 100,000 miles.
Check Single & Double Check Valves				●					Disassemble all valves and lubricate at 100,000 miles.
Clean & Lube Treadle Valve				●					Disassemble all valves and lubricate at 100,000 miles.
Clean Relay Valves								●	Disassemble all valves and lubricate at 100,000 miles.
Clean Spring Brake Valves								●	Disassemble all valves and lubricate at 100,000 miles.
Clean Parking Brake Valve								●	Disassemble all valves and lubricate at 100,000 miles.
Clean Quick Release Valves								●	Disassemble all valves and lubricate at 100,000 miles.
Inspect Brake Chambers	●								
Clean Pressure Protection Valves								●	Disassemble all valves and lubricate at 100,000 miles.
SHOE-TYPE BRAKES (AIR)									
Brake Inspection and Adjustment									Weekly or as needed depending on application
Lube Parking Brake Linkage		●							See Rockwell Field Maintenance Manual No. 4, Eaton EB-31 Service Manual, or See Eaton EB-32 Service Manual.
Adjust Parking Brake	●								4 Fittings. See key No.8 page 005-12 . Use NLGI Grade No.2 Grease.
Lubricate Brake Camshaft		●							See A3 Operator's Manual.
Lube Brake Slack Adjusters		●							4 Fittings. Use NLGI Grade No. 2 Grease. See key No.9 page 005-12 .
									4 Fittings. Use NLGI Grade No. 1 Grease. (Special Stopmaster Grease) See key No.10 page 005-12 .
HYDRAULIC BRAKES (DISC)									
Hydraulic Brake Operation									
Check Brake Fluid Level of Master Cylinder Reservoir.	●								Replenish, if necessary. Fluid BB #0607671; Vendor #218; or Wagner FL 10341.
Check the Hydro-Max Exterior & Connecting Lines for Leaks.		●							Replenish, if necessary. Fluid BB #0607671; Vendor #218; or Wagner FL 10341.
Check for Loose or Disconnected Electrical Connections and Damaged Wiring.		●							
Check Brake Linkage		●							Do Not Lubricate.
Check Brake Calipers for Fluid Leaks		●							No adjustment Required.
Lubricate Brake Calipers	●								Lubricate each time caliper is removed for pad change or repair.

NOTE: Refer to the [1999 All American Operator's Manual](#) for most maintenance procedures.

Chassis Component Maintenance Chart

Operation	Service Intervals								Months / Miles Whichever Occurs First *Service Intervals to be performed on a continuing basis. Example: 1 / 3,000 means every month or every 3,000 miles
	1/3,000	3/5,000	3/24,000	6/6,000	6/10,000	12/12,000	12/24,000	24/24,000	
ACCELERATOR SYSTEM									General Instructions
Inspect Cable		●							Check cable for proper connection, cracking, abrasion or deterioration. No lubrication required.
Clean & Lube Treadle Valve		●							See Williams Control Service Bulletin S-051.
Clean & Lube Slave Cylinder		●							See Williams Control Service Bulletin SB388UIC3D.
ELECTRICAL SYSTEM									
Check Battery Water Level	●								Use distilled water to fill.
Check Battery Posts				●					Clean more often if corrosion appears. Use heavy grease to help prevent corrosion.
Inspect Alternator				●					See Delco-Remy Service Bulletin 1G-266
Inspect Quick Starting Aid						●			Check system for proper operation. Check wiring and tubing for proper connection and deterioration. Replace parts as necessary.
Inspect Engine Block Heaters						●			Check wiring and hoses for proper connection, cracking, abrasion and deterioration. Replace parts as necessary.
EXHAUST SYSTEMS									
Inspect Exhaust Piping and Joints				●					Inspect piping and joints for leakage, corrosion, etc. Replace clamps if joint is leaking. Clamps are not reusable. Reseal with exhaust sealant and install new clamp.
AUTOMATIC TRANSMISSION									
Check Fluid Level	Daily								See Allison Operators Manual. Use Dexron or Dexron II fluid. See key No.11 page 005-12.
Change Fluid							●		See Allison Operators Manual. Use Dexron or Dexron II fluid. See key No.11 page 005-12.
Change External Filter	1 st 5,000 Miles then at Normal Oil Change Intervals								Filter located on RH side of engine block. Filter – AC 25011122 or PF 897
Change Internal Filter							●		Remove transmission fluid pan. Use vendor kit #23019201
Check Vent							●		
Inspect Shift Cable							●		No lubrication required.
Adjust Shift Cable	As Required								
DRIVELINES									
Inspect Driveshaft		●							See Section 050—Drivelines.
Lubricate Universal Joint		●							Use NLGI Grade No. 1 or 2 Grease. See key No.12 page 005-12.
Lubricate Slip Joint		●							Use NLGI Grade No. 1 or 2 Grease. See key No.13 page 005-12.
Torque Capscrews & Bolts	If Damaged or Removed for Service								
Straighten / Balance Angles and Phasing	If Damaged or Removed for Service								

NOTE: Refer to the [1999 All American Operator's Manual](#) for most maintenance procedures.

Body Component Maintenance Chart

Operation	Service Intervals								Months / Miles Whichever Occurs First
	1/3,000	3/5,000	3/24,000	6/6,000	6/10,000	12/12,000	12/24,000	24/24,000	
									*Service Intervals to be performed on a continuing basis. Example: 1 / 3,000 means every month or every 3,000 miles
									General Instructions
OUTWARD OPENING DOOR									
Adjust Door Linkage Rod									Adjust door linkage rod for proper open/closed position.
JACKKNIFE DOOR									
Adjust Door Control Rod				●					Adjust door control rod for proper open & closed position.
Adjust Roller Bracket	●								Adjust roller bracket for easier door operation.
Adjust Control Rod Bracket	●								Adjust bracket to prevent pivot pin binding.
Lubricate Hinge Pin	●								Lubricate each hinge lug. Use LPS™ No. 1 lubricant.
POWER JACKKNIFE DOOR									
Lubricate Hinge	●								Lubricate hinge pin. Use LPS™ No. 1 lubricant.
Adjust Air Pressure & Switch	●								
AIR STOP ARM									
Lubrication									No lubrication required.
Adjustment									Adjust air pressure for proper opening and closing of stop arm.
ELECTRIC STOP ARM									
Lubrication	●								Lubricate breakaway hinge at four (4) pivot points. Use Tri-Flow™ (Dupont) lubricant.
Inspect Outer Fasteners	●								Check outer fasteners for tightness.
Inspect Internal Fasteners		●							Check inner fasteners for tightness.
VANDAL LOCKS									
Lubricate Entrance Door				●					Lubricate bushing & shaft in center at base of lock handle. Use Apply™ lubricant.
Lubricate Entrance Door Key Lock		●							Spray lubricant into key lock. Use Apply™ lubricant.
Lubricate Sliding Bolt		●							Lubricate sliding bolt mechanism. Use LPS™ No. 1 lubricant.
Inspect & Adjust Emerg. Door		●							No lubrication and adjustment required.
BUS BODY CARE									
Wash									As Required
EMERGENCY EXITS									
Lubricate Lock Mechanisms				●					Spray lubricant into lock mechanism. Use Silicon spray.
Lubricate Roof Hatch	●								Spray silicon lubricant into lock mechanism. Work lock handle back & forth to insure smooth operation. Use Silicon spray.
Lubricate Door Hinge				●					Spray lubricant into hinge lugs. Use LPS No. 1.
Lubricate Rear Emerg. Door Positive Hold Open Hinge	●								Grease with door closed. use low temp grease per ASTM D4950 GC-LB Grade 2. -60 degrees to 350 degrees Fahrenheit. One fitting per hinge.
EMERGENCY EQUIPMENT									
Inspect All Mounting Fasteners	●								Inspect all emergency equipment mounting bracket fasteners to insure tightness.

NOTE: Refer to the [1999 All American Operator's Manual](#) for most maintenance procedures.

Body Component Maintenance Chart (continued)

Operation	Service Intervals								Months / Miles Whichever Occurs First
	1/3,000	3/5,000	3/24,000	6/6,000	6/10,000	12/12,000	12/24,000	24/24,000	*Service Intervals to be performed on a continuing basis. Example: 1 / 3,000 means every month or every 3,000 miles
DESTINATION SIGNS									General Instructions
Lubricate Hinges				●					Lubricate all hinge lugs. Use lightweight lubricating oil.
Lubricate Roller Gears				●					Lubricate roller gears where required. Use lightweight grease such as White Lube.™
Check & Adjust Curtain				●					
Replace Bulb	As Required								
WINDOWS									
Lubricate Latch	●								Spray lubricant into window latch mechanism. Use Silicon spray.
Lubricate Window Slides	●								Spray lubricant into sliding frame of window. Use Silicon spray.
HEATERS									
Check Heater Hoses						●			Check hoses for kinks, cracks or other visible signs of damage.
Clean Heater Coil & RH Front Heater Air Filter						●			Keep air flow passage free of dust & dirt by cleaning w/compressed air or vacuum & a soft bristle brush. Straighten damaged fins with a fin comb.
Check Motor Wheels & Fans						●			Check wheels and fans for obstructions or damage by running each fan alone, then listen and feeling for irregularity. Replace damaged wheels or fans to prevent vibratory damage.
Check Heater Panels & Housing						●			Fasteners which connect and retain structural & access panels should be checked and tightened as necessary.
Tighten Heater Hose Clamps	1 st 1,000 Miles and Annually Thereafter								Heater hose clamps are located at the underseat heater coil, behind the access door in the heater hose covering immediately forward of the left front wheelhousing & under the floor near right front and driver's heaters.
BODY MOUNTING									
Inspect Mounting Bolts		●							
MIRRORS									
Adjust Mirrors	As Required								Loosen adjusting nuts, make adjustment, then retighten nuts.
SEATS									
Inspect Mounting Fasteners	●								Tighten fasteners if required.
Inspect Cushion Attachments	Weekly								Tighten with Phillips-head screwdriver, if required.
Inspect Upholstery		●							Inspect for cuts, tears, wear and soiled areas.
Lubricate Driver's Seat				●					Apply lubricant to all working part joints. Use Aerosol Lithium base grease.
Inspect Seat Belts	Weekly								Inspect for torn or frayed areas.
Inspect Seat Belt Buckles	Weekly								Inspect for adjustability and proper operation.
Lubricate Seat Belt Buckles	As Required								Lubricate buckles to insure ease of operation. Use Graphite-type lubricant.
Clean Seat Belt Webbing	As Required								Clean using warm water and detergent solution.

NOTE: Refer to the [1999 All American Operator's Manual](#) for most maintenance procedures.

A3FE and A3RE Maintenance Keys

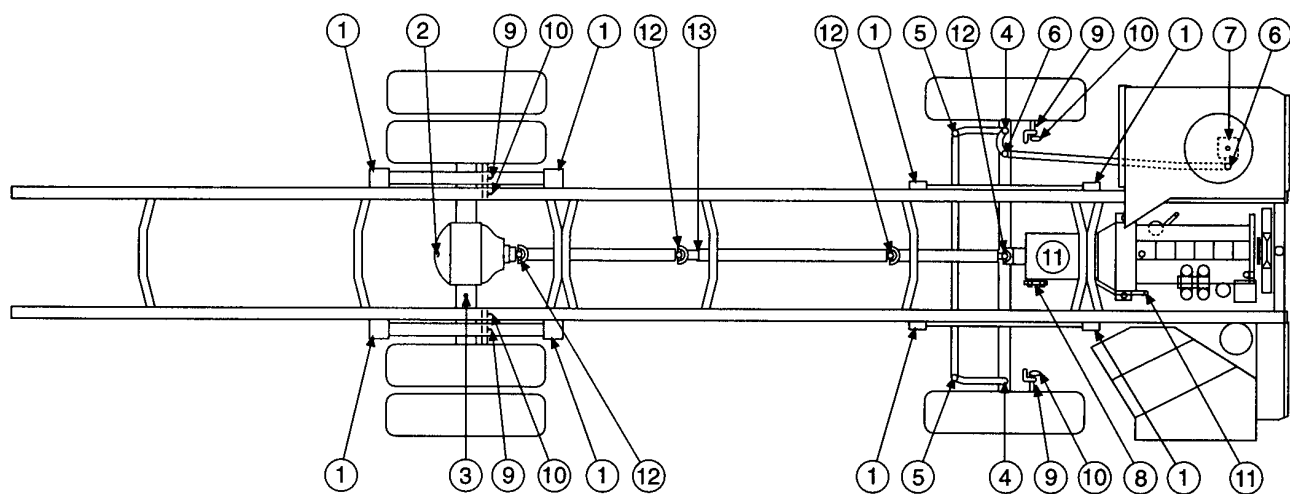


Figure 1—A3FE Maintenance Key

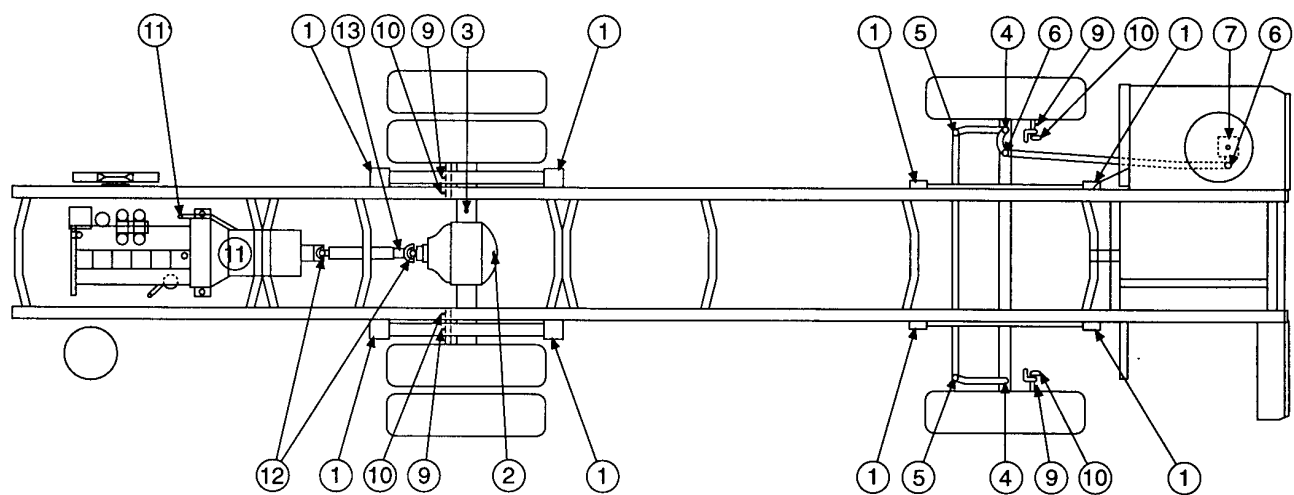


Figure 2—A3RE Maintenance Key